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Exhibit H

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LEXSEE 2007 U.S. APP. LEXIS 15820

HONEYWELL INTERNATIONAL, INC. and HONEYWELL INTELLECTUAL PROPERTIES, INC., Plaintiffs-Cross Appellants, v. UNIVERSAL AVIONICS SYSTEMS CORP., Defendant-Appellant, and SANDEL AVIONICS, INC., Defendant.

2006-1406,-1435

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

2007 U.S. App. LEXIS 15820

July 3, 2007, Decided

PRIOR HISTORY: [*1]

Appealed from: United States District Court for the District of Delaware. Magistrate Judge Mary Patricia Thynge.

Honeywell Int'l v. Universal Avionics Sys. Corp., 347 F. Supp. 2d 81, 2004 U.S. Dist. LEXIS 24216 (D. Del., 2004)

DISPOSITION: AFFIRMED.

COUNSEL: Richard G. Taranto, Farr & Taranto, of Washington, DC, argued for the plaintiffs-cross appellants. With him on the brief were Steven D. McCormick and Atif N. Khawaja, Kirkland & Ellis LLP, of Chicago, Illinois.

Howard G. Pollack, Fish & Richardson P.C., of Redwood City, California, argued for defendant-appellant. With him on the briefs were Michael R. Headley, John V. Picone, III, and John A. Dragseth, Fish & Richardson P.C., P.A., of Minneapolis, Minnesota. Of counsel were Scott J. Bornstein and Allan A. Kassenoff, Greenberg Traurig LLP, of New York, New York.

JUDGES: Before BRYSON, Circuit Judge, PLAGER, Senior Circuit Judge, and GAJARSA, Circuit Judge. Opinion for the court filed by Circuit Judge BRYSON. Dissenting opinion filed by Senior Circuit Judge PLAGER.

OPINION BY: BRYSON

OPINION

BRYSON, *Circuit Judge*.

This case concerns a patent on aircraft technology that plaintiffs Honeywell International, Inc., and Honeywell Intellectual Properties, Inc., (collectively, "Honeywell") asserted against defendant Universal Avionics Systems Corp. We hold that the district court correctly interpreted the [*2] disputed terms of the patent and that, under the correct interpretation, the jury permissibly found that Universal infringed Honeywell's patent.

I

The patent in suit, *U.S. Patent No. 4,914,436 ("the '436 patent")*, concerns a system for warning airplane pilots of potentially hazardous flight conditions. The criteria for issuing such warnings vary for different phases of a flight; the patent deals with warnings when an aircraft is on its final approach to an airport runway. Specifically, the patent claims a system for detecting whether an aircraft is on final approach to a runway and enabling a ground proximity warning system during final approach. According to the patent, older airplanes use a distinctive wing flap position when landing. As a result, the final approach warning systems on such airplanes can be enabled based on the position of the wing flaps. Newer airplanes, however, do not use a distinctive wing flap position when landing. In those airplanes, wing flap position is therefore not a reliable indicator of when to enable a warning system for the final approach phase of flight.

The patentees' system detects whether the aircraft is on final approach to an airport without relying [*3] on wing flap position. Instead, their detection system stores the latitude and longitude coordinates of various airport runways, as well as the distance from each runway at which an aircraft is deemed to be on final approach. The patent calls the area defined by the distance from the runway the "enabling envelope," and it refers to the aircraft's entry into the envelope as enabling the warning system. During flight, the detection system locates the runway closest to the aircraft's current position and determines whether the aircraft is within the enabling envelope for that runway.

In addition to storing coordinates for each runway, the patented system can also store the direction that each runway points. That information allows the system to determine not only whether an airplane is close to a runway, but also whether the airplane is aligned with the runway. With that capacity, the detection system can expand the radius of the enabling envelope if the aircraft is aligned with the runway and shrink the radius if the aircraft is not aligned with the runway, a feature that improves the capacity of the system to detect whether the aircraft is on final approach to the airport.

Honeywell filed [*4] suit alleging that Universal infringed the first claim of its patent by making and selling a device known as the Terrain Awareness and Warning System ("TAWS"). The parties disputed the proper construction of several terms of that claim, as well as whether Universal was entitled to summary judgment of noninfringement. The district court (per a magistrate judge) adopted Honeywell's claim constructions and denied Universal's motion for summary judgment of noninfringement. The case then proceeded to trial, and a jury found that Universal's accused product infringed the asserted claim. The district court entered judgment accordingly and awarded damages to Honeywell. Universal appeals.

II

Universal first argues that the district court erred in construing the term "heading of the aircraft" and that, under the proper construction, Universal is entitled as a matter of law to judgment of noninfringement. The term "heading of the aircraft" appears in the fourth and fifth limitations of the asserted claim, which reads in full as follows:

> 1. A system for use in an aircraft for providing an enabling envelope for a ground proximity warning system for an aircraft comprising:
>
> [1] a first source of signals [*5] representative of the longitude and latitude of an airport;
>
> [2] a second source of signals representative of the current longitude and latitude of said aircraft;
>
> [3] means responsive to said first source of signals representative of the longitude and latitude of said airport and said second source of signals representative of the current longitude and latitude of said aircraft for
>
> > [a] computing the distance of said aircraft from said airport and
> >
> > [b] providing an enabling envelope for enabling the warning system as a function of said distance of the aircraft with respect to said airport;

[4] a source of signals representative of the relative angular position of a particular runway with respect to the heading of the aircraft; and

[5] means responsive to said first and second sources of signals for providing a signal representative of the alignment of the aircraft with the runway by determining the angle between the runway and the heading of the aircraft.

'436 patent, col. 7, ll. 40--63. The district court concluded that the patentees used the term "heading of the aircraft" to refer to what would normally be referred to as the aircraft's "bearing," i.e., the direction to the aircraft from [*6] a runway. We agree.

The conventional meaning of the terms "heading" and "bearing" is undisputed. "Heading" ordinarily refers to the direction in which an object is pointing. "Bearing" ordinarily refers to the direction from an observer to an object. The specification and prosecution history make clear, however, that the patentees used the term "heading" in a manner different from its ordinary meaning. When a patentee defines a claim term, the patentee's definition governs, even if it is contrary to the conventional meaning of the term. *Phillips v. AWH Corp., 415 F.3d 1303, 1321 (Fed. Cir. 2005)* (en banc) ("[T]he specification is the single best guide to the meaning of a disputed term, and . . . the specification acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication." (quotation marks omitted)); *Bell Atl. NetworkServs., Inc. v. Covad Commc'ns Group, Inc., 262 F.3d 1258, 1268 (Fed. Cir. 2001)* (stating that "a patentee may choose to be his own lexicographer and use terms in a manner other than their ordinary meaning"). A claim term may be defined in a particular manner for purposes of a patent even "without an explicit statement [*7] of redefinition." *Bell Atl., 262 F.3d at 1268*.

The specification of the *'436 patent* clearly communicates the meaning the patentees have assigned to the term "heading." It does so by describing the claimed system's alignment determination as depending on the direction of the aircraft from the runway (i.e., what is conventionally known as the aircraft's bearing), not the direction in which the aircraft is pointing (i.e., what is conventionally known as the aircraft's heading). That alignment computation is depicted in figure 5 of the patent as follows:

[SEE DIAGRAM IN ORIGINAL]

'436 patent, fig. 5. The specification explains that signals X and Y are the differences in longitude and latitude between the position of the aircraft and the centerpoint of the nearest runway. By computing the arctangent of the ratio between Y and X, devices 46, 47, and 48 compute the angle of a line connecting the centerpoint of the runway to the position of the aircraft. In other words, they compute the angle of a line having a direction that is conventionally known as the bearing of the aircraft from the runway. Device 50 then compares the direction of that line with the direction that the runway is pointing, [*8] resulting in "a signal which is representative of the aircraft's alignment with the particular runway." *Id.*, col. 6, ll. 35--36. Thus, the specification makes it clear that in referring to the "alignment" of an aircraft with a runway, the patent denotes the extent to which the runway points at the aircraft, not the extent to which the aircraft points at the runway or points in the same direction that the runway points.

The specification discloses no other form of alignment. If Universal's construction were adopted, the disclosed embodiment would not relate to any limitation of the claimed invention, despite the clear link between the alignment computation discussed in the specification and the alignment computation called for by the claims. The specification refers to the calculation of the alignment of the aircraft with the runway as an "important feature of the present invention." *'436 patent*, col. 6, ll. 6--7. That characterization indicates that the disclosed alignment computation is the claimed "alignment of the aircraft with the runway," and shows that the patentees used the term "heading of the aircraft" to refer to the line connecting a reference point on the runway to the [*9] position of the aircraft. Because that is the construction that "most naturally aligns with the patent's description of the invention," *Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1250 (Fed. Cir. 1998)*, the district court properly held it to be the correct one.

The prosecution history confirms that when the patentees wrote "heading," they meant "bearing." Application claim 14, which became issued claim 1, initially phrased two of its limitations as follows:

> a source of signals representative of the relative angular position of a particular runway with respect to a datum and
>
> means . . . for providing a signal representative of the alignment of the aircraft with the runway.

The "source of signals" is provided by a database of the angular directions of various runways, and the reference "datum" is a direction, such as due north, against which the runway angles are determined. The specification stated, as it does now, that the alignment of an aircraft with a runway is determined by comparing the direction to the aircraft from the runway with the direction of the runway.

The examiner rejected application claim 14 based on his confusion about "how [*10] a runway is compared to a datum." In response, the patentees replaced the phrase "a datum" with "the heading of the aircraft," and they added the language "by determining the angle between the runway and the heading of the aircraft" to the last limitation. In their remarks about the amendment, the patentees explained that the claimed alignment determination requires comparing the direction of a runway against either a fixed reference line, such as a latitude or longitude line, or against the "heading" of the aircraft itself:

> It should be clear that the angular position of a runway must be referenced to either a datum, for example, a reference latitude or longitude line, or to the heading of the aircraft in order for the angular difference between the heading of the aircraft and the heading of the runway to be computed to determine the alignment of the aircraft with the particular runway.

In that manner, the patentees explained that the angle used to determine alignment can be identified without mentioning a "datum" by simply identifying the two lines that form the angle: the line formed by the runway and the line from a point on the runway to the position of the aircraft (a line that [*11] the patentees called the "heading of the aircraft").

The examiner allowed application claim 14 as amended. At the same time, the examiner rejected two pending claims that claimed an alignment determination based on the position of the aircraft and the angle of the runway; those pending claims did not recite that the alignment computation involved the position of the runway or the "heading of the aircraft." In response to the examiner's rejection, the patentees added to each claim a limitation reciting that the alignment determination uses the position of the runway. They explained that the added limitation allowed the claimed invention to "determine the heading of the aircraft with respect to the nearest airport" using the trigonometric functions discussed in the specification (which, accurately labeled, compute the bearing of an aircraft from a runway). The patentees expressly stated that "the output of the arctan device [i.e., aircraft bearing] represents the heading of the aircraft."

Following a further rejection, the patentees added to those claims the same "heading of the aircraft" language that was used in application claim 14. They explained that they amended the pending claims [*12] "to conform their language to similar language contained in claims 14 and 19," thus harmonizing the relevant language of their pending claims and their allowed claims. After that amendment, the examiner allowed the pending claims without comment.

The specification and prosecution history both make clear that the patentees used the term "heading" to refer to the angular direction of an object from a point on a runway. Thus, the "heading of the aircraft" is the angular direction of the aircraft from a point on a runway, and the "heading of the runway" is the angular direction of the runway line from a point on that runway. To hold otherwise would not include within the scope of the claim a preferred embodiment that the patentees labeled an "important feature of the present invention" and would ignore the patentees' definition of the term "heading" and their consistent use of that term throughout the prosecution history. The jury's finding that Universal's accused device detects alignment by computing the "heading of the aircraft" within the meaning of the asserted claim is therefore based on a proper interpretation of that limitation.

III

Universal next contends that the district court [*13] erred by construing the term "enabling envelope" in the phrase "an enabling envelope for enabling the [ground proximity] warning system" to mean "activating or turning on a set of limitations within which an aircraft can perform safely and effectively." Universal argues that the district court's construction improperly encompasses a system that uses distance as an operative warning parameter; that is, the court's construction allowed claim 1 of the *'436 patent* to cover a system that uses the distance of an airplane from an airport not just as a trigger to enable the warning system, but as one of the operative warning parameters in the warning system itself. Universal characterizes the warning system of its accused device as being "always on" and therefore not being "enabled" based on the distance of the airplane from an airport. Universal contends that its system does not fall within the scope of claim 1, as properly construed, because the claim should have been construed to encompass only the use of "an enclosed boundary for activating or turning on a warning system as a function of distance of the aircraft with respect to the airport and wherein the warning system does not itself [*14] use that distance as an operative warning parameter."

The language of claim 1 is broad enough to cover any system that creates an area within a particular distance from an airport in which a ground proximity warning system will operate to give a warning when another parameter is triggered, such as the aircraft's height above the ground. Moreover, nothing in the specification requires that the term "enabling envelope" be given a narrower construction. Universal notes that the specification describes a system that uses some indicator other than flap position to enable a warning system and that distance was not used as a parameter in the prior art warning systems described in the specification. While that is true, the specification is not at odds with the court's construction of the term "enabling envelope," which referred to "activating or turning on" a set of limitations for safe operation of the aircraft.

Relying on a passage from the prosecution history, Universal contends that during prosecution the applicants disclaimed a ground proximity warning system that uses airport distance in determining whether to issue a ground proximity warning, as the warning system of the accused device [*15] does. The purported disclaimer came in the course of one of the applicants' responses to the examiner's rejection of several claims as obvious in light of an article by Jeffrey Parnau about aircraft systems that warn pilots that they are about to enter restricted airspace. The Parnau reference disclosed a system that would give a warning based on an aircraft's distance from a specific point. The examiner found it obvious from that reference to make that point the center of an airport runway and to use the aircraft's distance from that point to determine when the airplane is on final approach to the runway.

In response, the applicants distinguished their final-approach detection system from the Parnau warning system as follows:

> While the applicants agree with the Examiner's characterization of the Parnau reference, it is equally clear that the warning system referred to in the Parnau reference relies on distance as an operative warning parameter. . . . However, such a warning is based solely on the distance of the aircraft from the restricted airspace. In contradistinction, the warning system recited in the claims at issue recites a 'warning of a hazardous flight condition' enabled 'as [*16] a function of the distance between the aircraft and a reference point.' Thus, it should be clear that contrary to the teachings of Parnau, the warning system recited in the claims at issue does not utilize distance as an operative warning parameter, but merely to enable the warning system.

Focusing on the applicants' use of the indefinite article "an" in referring to the term "operative warning parameter," Universal argues that the applicants disclaimed any system in which distance was used as one factor in determining whether to issue a warning.

Honeywell argues that the passage in question distinguishes Parnau on the ground that it issues a warning based "solely on the distance of the aircraft from the restricted airspace." Thus, according to Honeywell, the warning in Parnau is triggered solely by distance, whereas in the applicants' claims, distance both enables the warning system and may be used, in conjunction with some additional factor or factors such as aircraft altitude, to trigger a warning.

The passage in question can be read either way. The reference to Parnau's warning as based "solely on . . . distance" supports Honeywell's interpretation of the passage, while the reference [*17] to the application claims as "not utiliz[ing] distance as an operative warning parameter" supports Universal's interpretation. In context, however, it is plausible to read the phrase "an operative warning parameter" as referring to the sole parameter that triggers a warning, particularly in light of the fact that in Parnau itself distance is the sole operative warning parameter. The quoted passage can thus be understood to distinguish Parnau as a system in which distance is used not to enable the system, but to trigger a warning; read that way, the passage would not exclude a system in which distance is used to enable and also as a parameter in determining whether a warning should issue. Because the passage is ambiguous, we conclude that it does not constitute a sufficiently clear and deliberate statement to meet the high standard for finding a disclaimer of claim scope. *See, e.g., N. Am. Container, Inc. v. Plastipak Packaging, Inc., 415 F.3d 1335, 1345--46 (Fed. Cir. 2005)*. We therefore reject Universal's argument that the trial court's construction of the claim term "enabling envelope" was impermissibly broad. [1]

1 Universal also argues that the claim term

"envelope" should be construed [*18] to have its plain meaning of "a boundary that encloses." Although the district court defined "enabling envelope" for the jury as "activating or turning on a set of limitations within which an aircraft can perform safely and effectively," that construction more accurately defines the claim term "enabling the warning system." It is not clear that Universal preserved an objection to that aspect of the jury instruction, but in any event because nothing turns on the precise definition of "enabling envelope," that minor semantic issue is not a basis for overturning the verdict.

IV

Universal next contends that the trial court erred in construing the term "ground proximity warning system" to be broader than the specific alerting systems approved by the Federal Aviation Administration at the time of the patent application, i.e., the prior art systems that were mandated for use at that time. Because the prior art systems did not use distance from an airport to trigger alerts, Universal contends that the district court's construction should have excluded any monitoring system (such as the accused system) that uses distance from an airport as a parameter to trigger a ground proximity alert.

Contrary [*19] to Universal's contention, the patent does not limit the phrase "ground proximity warning system" to the particular system or systems approved at the time of the application. The context makes it clear that the term is used generically, to describe any system that warns of ground proximity, regardless of whether the system is approved, manufactured, proposed, or otherwise. The specification refers generically to systems "that provide warning or advisory indications in the event of hazardous flight conditions," including "systems generally known as ground proximity warning systems for aircraft that serve to monitor the flight conditions of an aircraft and provide a warning if flight conditions are such that an inadvertent contact with the ground is imminent." *'436 patent*, col. 1, ll. 15--22. The specification further provides that the invention "may be used to enable other warning modes and even used in control systems," *id.*, col. 3, ll. 45--46, and "can be used in virtually any warning or control system where [a signal indicating when an aircraft is on final or missed approach] is required," *id.*, col. 5, ll. 43--45. The claims use similarly generic language to describe ground proximity [*20] warning systems, such as "[a] warning system for use in an aircraft comprising: warning means for providing a ground proximity warning according to predetermined criteria," *id.*, col. 7, ll. 64--66, and "warning means for providing a ground proximity warning when an aircraft encounters a hazardous flight condition," *id.*, col. 8, ll. 19--21. In light of the language used in the specification and the absence of any contrary indication in the patent or the prosecution history, the district court properly declined to limit the term "ground proximity warning system" to any particular system, whether approved or designed to use particular factors in warning of ground proximity.

V

Universal's challenge to the verdict of infringement is based entirely on its claim construction arguments. Because we have rejected those arguments, we reject Universal's noninfringement contention. The evidence at trial showed that Universal's system would not operate to give a warning if the aircraft were more than 15 miles from an airport, and that within the 15 mile radius of the airport, it would give a warning if the aircraft flew too low. Under these circumstances, and in light of the court's claim construction, [*21] the jury was justified in concluding that the Universal system had an "enabling envelope" that was based on distance from the airport, that the enabling envelope was "for enabling the [ground proximity] warning system," and that the system therefore infringed claim 1 of the *'436 patent*.

AFFIRMED.

DISSENT BY: PLAGER

DISSENT

PLAGER, *Senior Circuit Judge*, dissenting.

The patent in this case relates to the art of navigation, specifically the process for determining the location at any given time of a craft (airplane or ship) proceeding around the earth. This is a well-established art, in practice for centuries. In navigation, the ordinary meaning of "heading" is the compass direction in which a craft is moving, oriented to either magnetic or true north. A heading is understood to be quite different from a "bearing," which is the direction (expressed in compass terms) that one object bears from another at any given moment. It is hardly likely that the people who invented Honeywell's patented navigation system were unaware of these conventions.

Claim terms are generally given their ordinary meaning as understood by a person skilled in the art. *Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005)* (en banc). [*22] While a patentee may choose to be his own lexicographer and use a term in a manner other than its ordinary meaning, and even though an "explicit statement of redefinition" is not always necessary, nevertheless the patentee must clearly express an intent to redefine the term. *Bell Atl. Network Servs., Inc. v. Covad Commc'ns Group, Inc., 262 F.3d 1258, 1268 (Fed. Cir. 2001)*.

In my view, the patent in this case falls far short of anything that suggests a clear redefinition of the term "heading." The term itself does not appear anywhere in the patent's written description. The majority relies on an embodiment described in the patent that determines alignment as a function of the bearing of the aircraft from the runway. But the alignment discussion in the written description does not use the term heading to describe what is conventionally known as a bearing. Moreover, there is no clear connection between that passage and the alignment determination set forth in claim 1, which does use the term heading. This is not a case like *Bell Atlantic* in which the patentee implicitly redefined a claim term by using it throughout the written description in a manner consistent with an unconventional meaning. [*23] *262 F.3d at 1270-73*. Here the patentees did not use the term at all in the written description.

Furthermore, the prosecution history does not show a clear redefinition of the term "heading." While the applicants at times used the word "heading" to refer to what is actually the bearing of the aircraft from the runway, they used the term in its conventional sense when they referred to "the heading of the runway" in their description of the invention. This inconsistent usage undercuts the argument that the applicants intended to adopt a different definition for the term "heading." Also, it is apparent from the examiner's citation of prior art references which use "heading" in the conventional manner that he understood the term to have its ordinary meaning. The applicants, cognizant of the examiner's understanding of the term and almost certainly aware of the distinction between a heading and a bearing, did not clearly signal the necessary intent to depart from the ordinary meaning of "heading."

At best, the patent and the prosecution history show that the inventors or their representatives who drafted the claims and prosecuted the patent left considerable confusion in the record about whether [*24] the claimed invention uses heading or bearing. However, it is not the province of the courts to salvage poorly--or incorrectly--drafted patent claims.

Fair notice to the public, and to competitors, of what is claimed depends on our holding patentees to what they claim, not to what they might have claimed. It is the responsibility of those who seek the benefits of the patent system to draft claims that are clear and understandable. When courts fail to enforce that responsibility in a meaningful way they inevitably contribute an additional element of indeterminacy to the system. Sometimes being kind to a party results in being unkind to the larger interests of the society. In my view this is such a case, and I respectfully dissent from the decision.